PROCEEDINGS

OF THE

MINERALOGICAL AND GEOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

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Some New Pennsylvania Mineral Localities.—Mr. CHAS. M. WHEATLEY reported, through Mr. Lewis, the following localities not mentioned in Dr. Genth's Report on the Mineralogy of Pennsylvania: Jones Mine, Berks Co., Pa.; Aurichalcite, Melaconite, Byssolite. Upper Salford Mine, Montgomery Co.; Azurite.

Pseudomorphs of Serpentine after Dolomite.—Mr. H. CARVILL LEWIS drew attention to some specimens of associated serpentine and dolomite which he had found within the city limits, and which appeared to be pseudomorphs. He had found them in the Twenty-second Ward, on Paul's Mill Road, near the Wissahickon Creek. A range of serpentine and steatite here crosses the creek, being the same which crosses the Schuylkill at Lafayette and continues through Montgomery County in a southwestwardly direction. It here appears to conform closely, both as to strike and dip, with the adjoining gneiss, whatever its origin. All along its northern edge the steatite is filled with hard nodules of dark serpentine, which Mr. T. D. Rand has shown to be pseudomorphous after staurolite.[1]

At the locality mentioned, this peculiar rock contains veins or lenticular beds of massive, cleavable dolomite. This dolomite is frequently traversed in the three directions of its cleavage-planes by thin seams of serpentine, while irregular masses of steatite or serpentine also run through it or protrude into it from without. When the interpenetrating serpentine is in a thin seam it may frequently be observed to assume a pseudomorphic character. It may assume the shape and external characters of dolomite, while retaining the color and composition of serpentine. It then possesses both the rhombic cleavage-planes and the jointed structure of the dolomite, and often, also, its characteristic transverse striæ. In some of the specimens collected the serpentine presents a step-like appearance, and when it coats successively

[1] Proc. Acad. Nat. Sciences, 1871, p. 303.

alternate blocks of dolomite, rising one above the other, it might be compared to a flight of tiny white marble steps, covered by a green carpet.

At times, whole blocks of dolomite are replaced by serpentine. Transverse striæ have been noticed only on very thin seams, yet here they are quite as distinct as upon the adjacent dolomite. Rhombic cleavage-planes, however, are very common throughout the serpentine, although, unlike the dolomite, these markings are generally only superficial. In very exceptional cases the eminent rhombohedral cleavage of the dolomite is retained by the serpentine. While the serpentine has thus acquired the external form of dolomite, it possesses its identity as serpentine. When broken it shows the irregular or conchoidal fracture characteristic of true serpentine. When a fragment is immersed in warm acid, a momentary effervescence often takes place, owing to the adherence of thin scales of dolomite, as proven by the microscope.

No actual passage of dolomite into serpentine has been observed on the specimens collected. The two minerals are distinct. The line of demarkation between them is always sharp; pure serpentine lying in juxtaposition with pure dolomite. The dolomite is the white, glassy, cleavable variety, containing about one and one-half per cent. of carbonate of iron, as determined by volumetric analysis.

From the description which Professor Dana has given of the serpentine pseudomorphs found at the Tilly-Foster iron-mine,[1] it appears that in several particulars those of the Wissahickon are quite similar.

In the use of the term *pseudomorph*, it must not be understood that it implies an actual alteration. The specimens here described may be classed as *pseudomorphs by substitution*. It appears that the dolomite has not been altered into serpentine, but has been replaced by it. As is probably the case with all pseudomorphs by substitution, the original material is more soluble than that which is substituted. Whole rhombs of dolomite appear to have been dissolved and simultaneously replaced by the deposition of serpentine.

That this is a case of pseudomorphism by infiltration and replacement, is indicated by the fact that in one specimen a rhomb of dolomite is replaced by magnetic chromite. The chromite occupies the full width of the narrow seam of serpentine for a short distance, and was evidently deposited from the same solution which held the serpentine.

In discussing the origin of these and similar pseudomorphs, it is important to bear in mind the fact of the sharp juxtaposition of the two substances, and the consequent possibility of their having been formed contemporaneously. It must also be remembered that the dolomite, which contains the pseudomorphs of serpentine,

[1] Amer. Jour. Science, vol. viii, 1874, p. 371.

lies itself in a bed of serpentine, and that it is therefore possible that the pseudomorphs were formed at the very time of the original crystallization of the dolomite. If we grant that the dolomite, and the bed of serpentine which contains it, were formed simultaneously, it may readily follow that the minute pseudomorphous seams of serpentine *within* this dolomite were enclosed during the very act of crystallization of the dolomite. With this view, we might regard these pseudomorphs by substitution as having been deposited, not by an infiltrating solution from without, but by a solution which was being *expelled* from the interior of the dolomite by the crystallizing power of the latter. If such were the case, the serpentine would readily assume the *habitus* of the dolomite, and the same crystallizing force which caused the cleavage-planes and the transverse striæ upon the dolomite would superinduce them upon the enclosed serpentine.

Contemporaneous pseudomorphism implies a pseudomorphism by association. True pseudomorphism by substitution, like epigenesis, is subsequent. While not attempting in the present case to determine the relative time and, therefore, the kind of pseudomorphism, the foregoing remarks are offered merely as suggestions in reference to a subject already so fully discussed by eminent writers.

New Localities for Barite.—Mr. LEWIS contributed the following new Pennsylvania localities for barite:

1. Bridgeport, Bedford Co. It occurs here in small tabular crystals in red Catskill sandstone (No. IX).

2. Broad Top Mountain, Huntington Co. Thin transparent coatings of barite frequently cover the fossil ferns and calamites which occur in the carboniferous shales and fire-clay adjoining the semibituminous coal-seams of Broad Top Mountain.

3. Lancaster Station, Franklin Co. It occurs here in large white cleavable masses.

FEBRUARY 23, 1880.

New Localities for Chabazite.—Mr. LEWIS PALMER announced two new localities for chabazite. It occurs in red crystals in a hornblendic gneiss at Waterville, near Chester, and also at Upland, Delaware Co.

On a New Ore of Antimony.—Mr. H. C. LEWIS described an oxide of antimony found at Senora, Mexico, which he had been unable to identify completely with any known mineral. Under the supposition that it was a tin ore, it was sent to him by Mr. T. H. Shoemaker for examination.

The mineral generally occurs as a massive, compact, hard sub-